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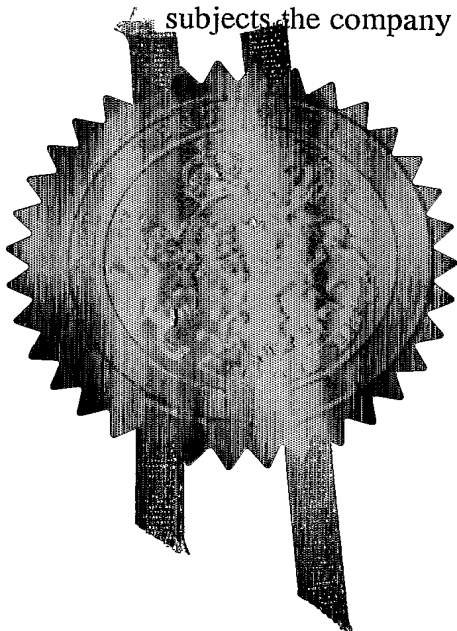
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1. Your reference

KJL/CT/P5366

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2. Patent application number
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0328556.6

3. Full name, address and postcode of the or of each applicant (underline all surnames)

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Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

United Kingdom

4. Title of the invention

Syringe Driver Housing

5. Name of your agent (if you have one)

ROYSTONS

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Tower Building,
Water Street,
Liverpool. L3 1BA
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Patents ADP number (if you know it)

1438001 ✓

6. Priority: Complete this section if you are declaring priority from one or more earlier patent applications, filed in the last 12 months.

Country

Priority application number
(if you know it)

Date of filing
(day / month / year)

7. Divisionals, etc: Complete this section only if this application is a divisional application or resulted from an entitlement dispute (see note f)

Number of earlier UK application

Date of filing
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8. Is a Patents Form 7/77 (Statement of inventorship and of right to grant of a patent) required in support of this request?

Yes

Answer YES if:

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicant is a corporate body
- Otherwise answer NO (See note d)

Patents Form 1/77

9. Accompanying documents: A patent application must include a description of the invention. Not counting duplicates, please enter the number of pages of each item accompanying this form:

Continuation sheets of this form

Description

7

Claim(s)

-

Abstract

-

Drawing(s)

3 + 3

10. If you are also filing any of the following, state how many against each item.

Priority documents

-

Translations of priority documents

-

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

-

Request for a preliminary examination and search (Patents Form 9/77)

-

Request for a substantive examination (Patents Form 10/77)

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Any other documents (please specify)

-

11. I/We request the grant of a patent on the basis of this application.

Signature(s)

ROYSTONS

Kayston

Date

08/12/03

12. Name, daytime telephone number and e-mail address, if any, of person to contact in the United Kingdom

Kate J. Lees - 0151-236 5147/1417

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Title: Syringe Driver Housing

DESCRIPTION

The present invention relates to an improved syringe driver housing.

Syringe drivers are well known. They are small, light weight, battery operated machines that are designed to administer subcutaneous infusions of a prescribed amount of over a given period. A syringe driver basically consists of the machine itself, a syringe containing the medicine to be administered which is attached to the machine and a thin piece of tubing attached to the syringe which has a needle at the end of it. Syringe drivers are often provided with both the machine and the syringe contained within a housing to increase the portability of the device.

These syringe driver assemblies are provided in different sizes to accommodate syringes of different volumes, such as 5, 10, 20 and 30 ml syringes. The requirement for separate housings to contain syringes of different volumes increases the cost of supplying the syringe drivers since different tooling is required to produce drivers of various sizes. It is desirable to provide a housing for a syringe driver that is suitable for all volumes of syringe.

It is an object of the present invention to provide a syringe driver housing that can accommodate more than one size of syringe.

Accordingly, the present invention provides a housing for a syringe driver assembly comprising a modular body part and an extension adapted for attachment thereto.

The extension may be attached to the modular body part to increase the length and/or width of the body part thereby enabling the body part to house a syringe of greater dimensions than that housed by a body part that has no extension attached thereto.

Preferably, the housing includes at least one cover for attachment to the modular body part and/or extension. More preferably, at least two covers are provided, being of different sizes, to correspond to the size of the main body with, and without, the extension attached thereto.

In a preferred embodiment of the present invention, the main body comprises a container for receiving component parts of the syringe driver. Preferably, the main body has a wall extending from an edge thereof wherein the syringe sits in the recess formed by the container and side wall. More preferably, the main body comprises a rectangular prism having four side faces and two end faces with the side wall extending substantially perpendicularly from one edge thereof to define a L-shaped recess for receiving a syringe. However, it is to be appreciated that the main body part may be any desired shape for receiving the component parts of a syringe driver. The main body part is preferably hollow for receiving the working components of the driver assembly, such as the motor, battery and electronic controls. More preferably,

a flange or lip extends inwardly from the side wall at one end thereof. A bracket or clip may be provided for retaining the syringe in the recess.

It is preferable for the region of the main body to which the extension may be attached to be provided with a male or female member for mating with a complimentary female or male member provided on the extension. Preferably, one end face of the main body is provided with a male or female member. In a preferred embodiment, the main body part is a moulded component having a male member formed as an integral part thereof.

The extension is constructed such that it will attach to the main body part and serve to extend the region that receives the syringe, such as the L-shaped recess thereby enabling the housing to receive a syringe of greater size than could be received by the main body only. Preferably, the extension has a hollow part that is generally in the form of a sector in plan view, with the straight sides of the sector attaching to the main body part and the arc of the sector forming the end of the housing. In this embodiment, the straight sides preferably define a recess within the extension for receiving an end face of the main body and the arc forms a closed end. An edge of one face of the extension formed by the straight sides is has a side wall extending substantially perpendicularly therefrom for mating with, or abutting, the side wall of the main body part.

Preferably, the extension is a moulded component.

The cover is preferably in the form of a substantially L-shaped member that extends over the L-shaped recess of the housing to provide an internal cavity for receiving a syringe. Preferably, the cover is hingedly mounted to the side wall of the main body and/or side wall of the extension. It is preferable to provide at least two modular covers of different sizes for attachment to the housing wherein the smaller cover may be used when no extension is attached to the main body and the relatively larger cover may be used when the extension is attached to the main body.

For a better understanding of the present invention and to show more clearly how it may be carried into effect, reference will now be made by way of example only to the accompanying drawings in which:-

Figure 1 is a perspective side view of a syringe driver housing according to one embodiment of the present invention, shown adapted for receiving a large syringe;

Figure 2 is a perspective side view of the syringe driver housing shown in Figure 1, shown with the cover removed;

Figure 3 is a perspective side view of the cover of the syringe driver housing shown in Figure 1;

Figure 4 is a perspective side view of the extension that has been removed from the housing shown in Figures 1 and 2;

Figure 5 is a perspective side view of the syringe driver housing of Figure 1 but having a cover for a small syringe attached thereto;

Figure 6 is a perspective side view of the syringe driver housing shown in Figure 5 having the front extension removed;

Figure 7 is a perspective side view of the cover attached to the syringe driver housing shown in Figure 6; and

Figure 8 is a perspective side view of the syringe driver housing according to one embodiment of the present invention, shown adapted for receiving a small syringe.

Referring to the accompanying drawings, a syringe driver assembly is illustrated that has been modified according to the present invention to enable the syringe housing 2 to accept syringes of different volumes, such as 5, 10, 20 and 30 ml syringes. The invention not only enables syringes of different sizes to be housed within the device but also allows for a reduction in size of the housing when a smaller syringe is to be housed therein, thereby keeping the assembly as small as possible. This is desirable as it results in the device being discrete for the user and fully portable.

Figures 1 to 5 of the accompanying drawings illustrate a syringe housing according to the present invention for receiving a relatively large volume syringe, such as 30ml. The syringe housing 2 comprises a main body 4 for receiving the internal components of the syringe driver or pump, a cover 6 and an extension 8. The internal working components that allow effective operation of the driver (such as the motor, battery and electronic circuitry) are omitted from the drawings for the sake of simplicity. The main body 2 is comprised of a moulded component having a rectangular hollow part 4a for receiving the working components, with one face of the rectangular part having a side wall 4b extending substantially perpendicularly

therefrom to define a L-shaped recess 4c for receiving a syringe. A flange 4d extends inwardly at one end of the side wall 4b to act as a stop.

The extension 8 is in the form of a moulded component that is attachable to one end of the main body, preferably by means of a snap-fit connection, and is constructed such as to increase the length of the recess 4c for receiving a long syringe. In the illustrated embodiment, the extension has a main body 8a with a side wall 8b extending substantially perpendicularly from one side thereof, the main body being cone-shaped in plan view to provide a housing that is aesthetically pleasing. However, it is to be appreciated that the extension 8 is not limited to this design. For example, the extension could be in the form of a miniature version of the main body part 4 provided that the extension serves to extend the length of the L-shaped recess for receiving a syringe.

The housing is also provided with a L-shaped cover 6 that is hingedly mounted with respect to the side walls 4b and 8b, being dimensioned to shield the L-shaped recess thereby defining an internal cavity for receiving a syringe 100.

Figures 5 to 8 of the accompanying drawings illustrate how the syringe driver housing shown in Figures 1 to 4 can be adapted to receive a smaller syringe, such as a 10ml syringe. The cover 6 is removed from the housing and is replaced with a substantially identical, but smaller, cover 6' (see Figure 5). The extension 8 is also removed from the end of the main body 4 to provide a shorter housing for receiving the smaller syringe. Figure 6 shows the shorter housing containing the relatively large syringe 100 that fitted in the extended syringe housing of Figures 1 to 5 whilst Figure

8 shows the shorter housing containing a smaller syringe 100 that is completely housed within the casing.

Referring in particular to Figures 4,6 and 8 of the accompanying drawings, it can be seen that the extension 8 is able to fit onto the main body 4 by mating the male portion 10 provided at one end of the main body with the complimentary female portion 12 provided by the hollow interior of the extension. No additional securing means is required thereby enabling the syringe housing to be easily and quickly adapted to house syringes of different lengths.

It is to be appreciated that a similar modular system could be provided to house syringes of different diameters, for example by having an elongated extension for mating with a side of the main body and a cover that corresponds in dimensions to the recess thus formed.

The present invention provides a modular housing system for receiving the components of a syringe driver assembly that is capable of being quickly adapted to accommodate syringes of different lengths and/or diameters. The invention provides the additional benefit of always providing a housing that is as small as possible given the dimensions of the syringe contained therein which substantially dictate the overall size of the housing.



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FIG. 1

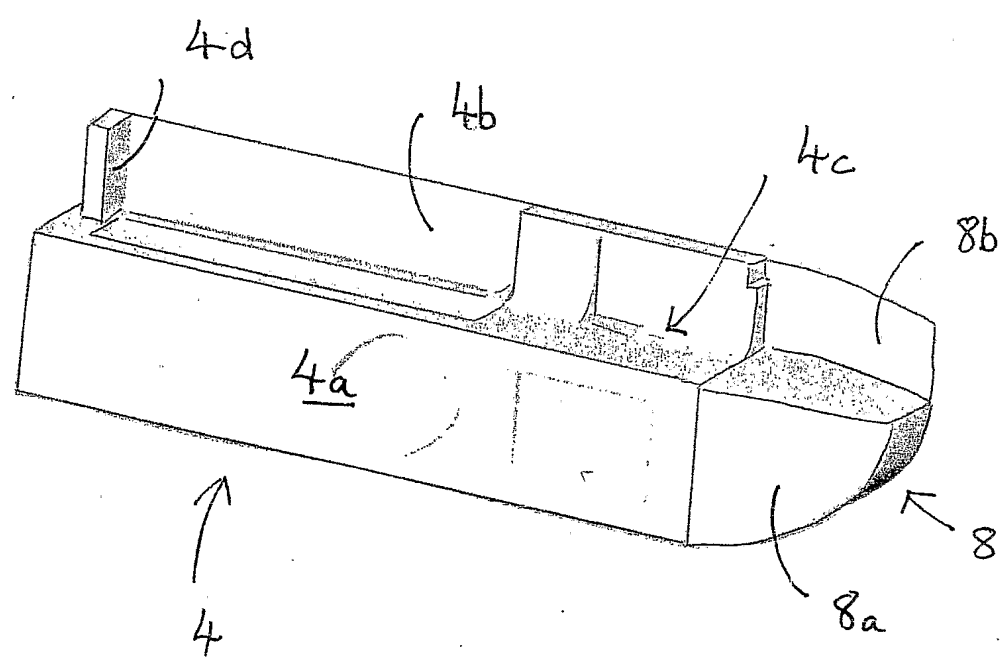
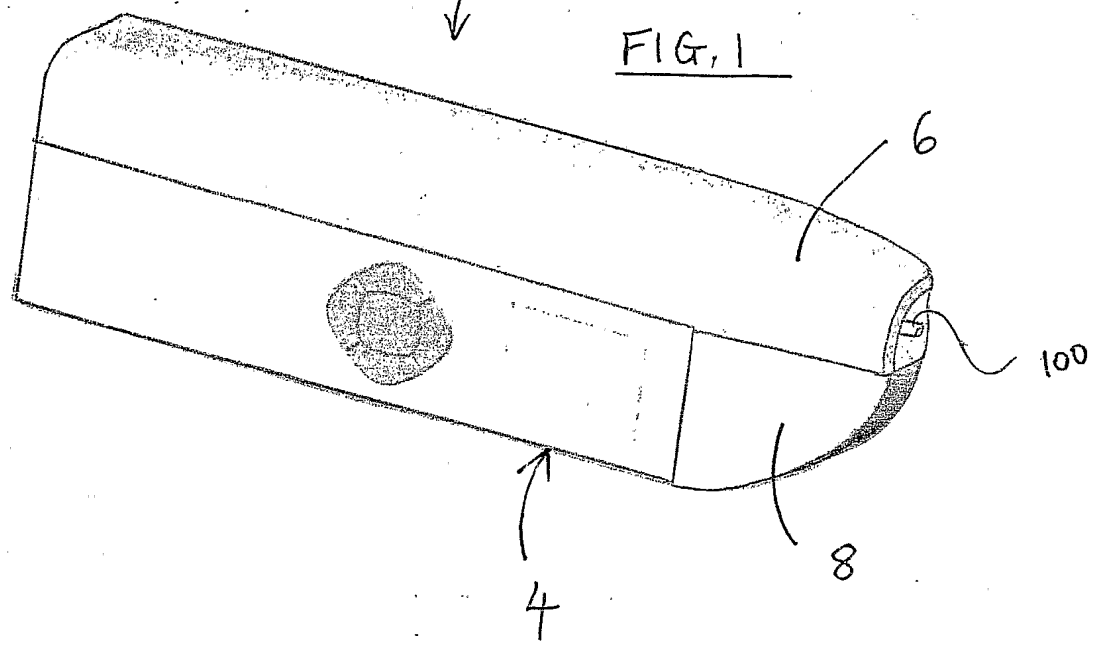
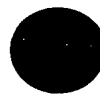


FIG. 2.



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FIG. 3

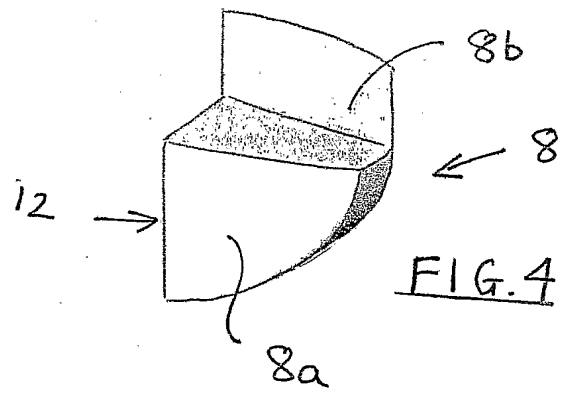
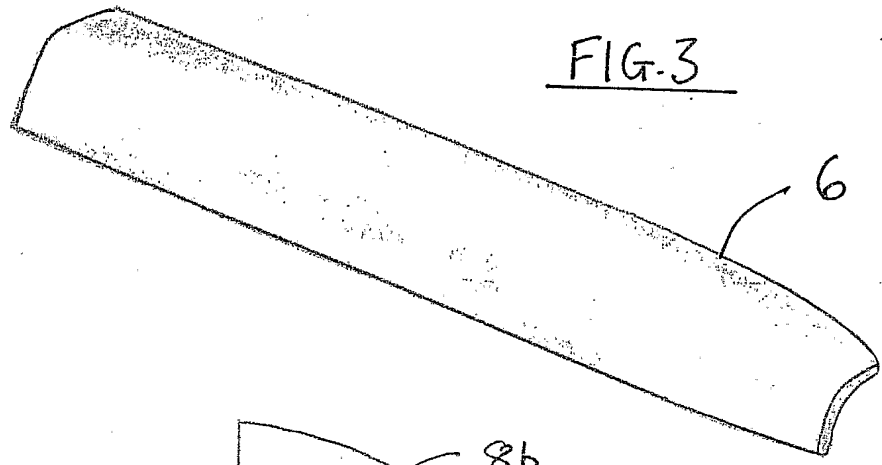


FIG. 4

FIG. 5.

